

Appln. No. 10/335,836
Amdt dated October 18, 2005
Reply to Office Action of May 19, 2005

REMARKS

Claims 1, 10 and 11 stand provisionally rejected as being unpatentable over claims 1-4, 8 and 10 of co-pending Application No. 10/619,897 in view of Doane (U.S. 2,449,369). The claims of the cited '897 application recite all of the structure to the connection in combination with a conduit, except for stating specific connector structure in combination with specific conduit structure. Doane is cited for disclosing that it is old and well known to utilize a connector with a hose of specific structure, including corrugated metal inner layers, and fiber reinforced outer layers, the combination of which is old and well known in the art.

This rejection is respectfully traversed because the cited '897 application may be disqualified as prior art pursuant to 35 USC §103(c). In particular, Application No. 10/619,897 and the subject application were, at the time the invention claimed in the subject application was made, owned by the same person. In this regard, the Examiner's attention is directed to MPEP 706.02(1)(1)II.A. and the assignment records of the U.S. Patent and Trademark Office wherein an assignment of the '897 application to Tokai Rubber Industries, Ltd. was recorded on November 10, 2003 at Reel 014668, Frame 0102, and an assignment of the subject application to Tokai Rubber Industries, Ltd. was recorded on November 10, 2003 at Reel 014668, Frame 165-166.

Withdrawal of the above rejection is respectfully requested.

Claims 1, 4 and 9 stand rejected under 35 USC §103(a) as unpatentable over Odru (U.S. 6,550,502) in view of Malcarne, Jr. (U.S. Pat. Publ. No. 2002/0117226). The Examiner finds that Odru discloses all of the structure recited in these claims with the exception of forming the woven layers with the warp fiber being substantially parallel to an axis or at least disposed at an angle of 40° or less, and forming the corrugations as annular corrugations. However, Odru does suggest that the angle is not large and the Examiner finds that it would have been obvious to one skilled in the art to orient the woven layers of Odru to be of any small angle including substantially parallel to the

longitudinal axis or at least less than 40°, as the choice of the angle is a mere matter of mechanical expedience requiring only routine experimentation. Malcarne, Jr. discloses that it is old and well known in the art to form tubes of corrugated metal tubing and outer reinforcing layers where the corrugations can be either annular or helical, reference being made to paragraph 0010 of Malcarne. The Examiner concludes that it would have been obvious to modify the corrugations in Odru by substituting an inner layer provided with annular corrugations for the helical corrugated compound tube since it is old and well known in the art that either type of corrugation can be used on metal corrugated reinforced tubes as suggested by Malcarne and such substitution would provide an inner tube that would be flexible, but would not have seams that could provide leaks and premature failure.

Claim 9 has been cancelled, however, the rejection of claims 1 and 4 is respectfully traversed and reconsideration is requested in view of the comments which follow.

Applicant respectfully wishes to point out that the inner layer 9 of Odru is not a corrugated metal tube. The inner tube of Odru or “metal carcass” 9, as it is described in the patent, is made of so-called “stapled steel tape”, four embodiments of which are shown in Figs. 2A-2D. This inner layer 9 functions completely differently from a corrugated metal tube and is not subject to the same stresses as a corrugated metal tube. Referring particularly to the sentence on lines 55-57 of column 2, it is stated as follows:

As regards the internal pressure stresses, it [metal carcass 9] undergoes no circumferential deformation because it remains pressure balanced since it is not liquid or gas tight.

The construction of the hose in Odru is completely different from the construction of the hose described in Malcarne and, therefore, one skilled in the art would have no incentive whatever to substitute a solid corrugated metal tube of either annular or

helical construction for the stapled steel tape tube 9 of Odru. The stapled steel tape 9 of Odru provides neither the circumferential strength (in resistance to radial internal pressure) nor the impermeability that would be provided by a solid corrugated metal tube of Malcarne. Thus, the teaching or suggestion to make the substitution is totally lacking.

The Examiner's attention is also directed to the accompanying declaration of the inventor Norihiko Furuta. In this declaration, the inventor explains how his low braid angle (40° or lower) uniquely solves a problem in the prior art relating to fatigue failure of a metal corrugated tube. It is respectfully submitted that this declaration supports the unobviousness of claims 1 and 4.

Claims 5-8 stand rejected under 35 USC §103(a) as unpatentable over Doane in view of Malcarne, Jr.

Claims 5-8 have been cancelled.

Claim 10 stands rejected under 35 USC §103(a) as unpatentable over Odru in view of Malcarne, Jr. as applied to claims 1, 4 and 9 above, and further in view of Feher. The Examiner finds that the patent to Odru, as modified by Malcarne, discloses all of the recited structure of claim 10 with the exception of providing a specific type of connector and forming the end of the corrugated tube with a straight wall portion. Feher is cited as disclosing that it is old and well known to provide connectors on the ends of corrugated reinforced tubes that are provided with a straight end portion (60 in Feher) of corrugated tube (18), a rigid inner conduit (12) provided with a groove (52) to receive a portion of a collar (14) which is bent or compressed around the straight portion to clamp the corrugated tubing to the pipe shaped connecting part (12). The Examiner concludes that it would have been obvious to one skilled in the art to modify the conduit in Odru/Malcarne by providing a connector that has a tubular body portion with a groove, and a collar which engages the grooves and captures a straight portion of the inner corrugated duct as suggested by Feher. Such modification would provide a connector that would securely attach the tube to other articles in a secure manner and prevent premature failure.

The foregoing rejection is respectfully traversed and reconsideration is requested in view of the following comments.

Initially, it is respectfully submitted that claim 10 is allowable along with independent claim 1 from which claim 10 depends for the reasons set forth above with respect to the rejection of claim 1. The combination of Odru and Malcarne is not proper because Odru does not disclose a unitary corrugated metal tube and, as a result, there is no concern in Odru with fatigue failure resulting from repeated pressurization nor is impermeability of the corrugated tube of any concern. Therefore, there would be no incentive to one skilled in the art to substitute the teaching of Malcarne in Odru. Feher, like Odru, also does not disclose a unitary corrugated metal tube and the need to provide reinforcing at a low braid angle to minimize stresses leading to fatigue failure.

Claim 11 depends from claim 10 and is believed to be allowable for all of the reasons discussed with respect to claim 10 and claim 1 from which claim 10 depends.

New claim 12 is a combination of pending claims 1 and 10 to which has been added, in lines 18 and 19, "the straight-walled portion of the corrugated metal tube extending beyond a fit-engagement groove". Referring to the Examiner's rejection of claim 10 discussed above, the feature added to new claim 12 is not shown in Feher. In particular, Feher does not disclose a straight-walled portion (60) that extends beyond a fit-engagement groove (36). The Examiner refers to a fit-engagement as "groove 52", but applicant respectfully submits that this is incorrect. Therefore, as best seen in Figs. 3 and 4 of Feher, the straight-walled portion (60) does not extend beyond the fit-engagement groove 36.

In addition, claim 12 is believed to be allowable for the same reasons as claims 1 and 10 discussed above.

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For all of the foregoing reasons, claims 1, 4, and 10-13 are believed to be allowable and further favorable action is respectfully requested.

Respectfully submitted,

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A handwritten signature in cursive script, appearing to read "Joseph J. Jochman".

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